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77. **Setophaga ruticilla.** REDSTART.—Rather rare summer resident. Migrants observed from August 19 to 24, 1910.

78. **Dumetella carolinensis.** CATBIRD.—Not very common. A pair nested near the camp but they were seldom seen in the brush.

79. **Toxostoma rufum.** BROWN THRASHER.—Not uncommon.

80. **Troglodytes ædon ædon.** HOUSE WREN.—Very common. One pair was found nesting in a rural delivery box, while a second pair selected an old threshing machine as a desirable location. Another pair nested within one of the camp buildings, gaining access through a crevice under the eaves.

81. **Sitta carolinensis carolinensis.** WHITE-BREASTED NUTHATCH.—Quite common.

82. **Penthestes atricapillus atricapillus.** CHICKADEE.—Common.

83. **Hylocichla mustelina.** WOOD THRUSH.—Occasionally seen, but more often heard, in the late afternoon or evening.

84. **Hylocichla fuscescens fuscescens.** VEERY.—During the summer of 1908 the Veery was quite often seen or heard in the vicinity of the camp, but all other years it has been more or less uncommon.

85. **Planesticus migratorius migratorius.** ROBIN.—Common about the camp.

86. **Sialia sialis sialis.** BLUEBIRD.—Fairly common. One or two broods usually remained near the camp.

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## THE BAHAMAN SPECIES OF *GEOTHLYPIS*.

BY W. E. CLYDE TODD.

Two very distinct Warblers of the genus *Geothlypis* exist in the Bahama Islands, one the common Maryland Yellow-throat of eastern North America, *G. trichas*, which occurs as a winter resident, the other a much larger endemic species, found in the more northern islands of the group, where it has become split up into a number of closely allied specific or conspecific forms, whose discrimination is a matter of no small difficulty. Our present concern is with this larger bird, this study being the outgrowth of an attempt to identify the specimens collected by Mr. W. W. Worthington in 1909, and having been made possible through the courtesy of the various institutions and individuals specified beyond, where-

by I have been able to bring together no less than one hundred and fourteen specimens of this puzzling group, including the types of five of the described forms. The examination and comparison of this material, inadequate as it is in many respects, has nevertheless led to some interesting results which, differing somewhat as they do from previously published conclusions, are presented herewith as a contribution towards the solution of an intricate and perplexing problem.

The bird in question was discovered by Dr. Henry Bryant on the island of New Providence during his second visit to the Bahamas (in the winter of 1865-66), and was described from three male specimens under the name *Geothlypis rostratus*,<sup>1</sup> comparison being made with *G. trichas*. In 1872 Mr. Ridgway<sup>2</sup> reduced it to a subspecies of *G. trichas*, but it was subsequently raised again to specific rank by Mr. Cory<sup>3</sup> — a decision which has not been questioned since. Mr. Cory was apparently the second person to meet with the species, securing two specimens, one of which was a female, during December, 1878, and January, 1879. In 1886 Mr. Ridgway<sup>4</sup> described two allied forms, *G. coryi* from Eleuthera and *G. tanneri* from Abaco, based on specimens collected by the naturalists of the U. S. Fish Commission Steamer 'Albatross.' In 1892 Mr. Cory<sup>5</sup> recorded birds of this general type from New Providence, Andros, Great Bahama, Abaco, and Eleuthera, and suggested that *G. tanneri* ought to stand as a subspecies of *G. rostrata*, while at the same time insisting upon the specific distinctness of *G. coryi*. His remarks seem to have been based on an examination of the specimens in his own collection and in that of Mr. Charles J. Maynard, who has collected more examples of these skulking, retiring birds than any other person. Indeed, so far at least as New Providence is concerned, these birds, never abundant at any time, seem to have been so far reduced in numbers by Mr. Maynard's collecting (in 1897) that they have not yet recovered their lost ground; at any rate, no subsequent collectors have ever been

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<sup>1</sup> Proc. Boston Soc. Nat. Hist., XI, 1867, 67.

<sup>2</sup> Am. Jour. Sci., IV, 1872, 458.

<sup>3</sup> Birds Bahama Islands, 1880, 73.

<sup>4</sup> Auk, III, 1886, 334, 338.

<sup>5</sup> Cat. West Indian Birds, 1892, 156.

able to find them in any numbers. Mr. Maynard's specimens were scattered, the greater part, however, going into the collections of Messrs. E. A. and O. Bangs and of Mr. G. S. Miller, Jr., the latter thence into the British Museum, being thus lost to ornithologists in this country.

Up to 1897, although meanwhile, as we have seen, certain of the other islands had been credited with what were considered representative insular forms, no one seems to have suspected the existence of *two* supposedly distinct species on New Providence, and "it is to Mr. Maynard's great acuteness as a collector that this unlooked for discovery is due." While collecting these birds that season he noticed that they had "two different songs, and making notes on the birds he shot, soon found that two distinct species were breeding equally commonly there. The smaller, duller colored bird, *G. rostrata*, sings like a Maryland Yellow-throat. The larger, more highly colored species, sings like *G. coryi*,—a song so different that Mr. Maynard says, no one on first hearing it would take it for the performance of a Yellow-throat."<sup>1</sup> Mr. Bangs accordingly described the latter form under the name *Geothlypis maynardi*, after its discoverer, pointing out its obvious distinctive characters as compared with *G. rostrata*. Thus matters rested until 1902, when Mr. Ridgway<sup>2</sup> described a second form from Abaco, *G. incompta*, one from Andros, *G. exigua*, and a *third* from New Providence, *G. flavida*, the latter having originally been recorded as a probably accidental occurrence of *G. coryi* by Mr. Bangs. Mr. Ridgway also discussed the case of these Bahaman forms at considerable length, and, while provisionally retaining them all as full species, he at the same time suggested that eventually they would have to stand as follows:

1. *Geothlypis rostrata*. New Providence.
2. *Geothlypis tanneri tanneri*. Abaco.
3. *Geothlypis tanneri maynardi*. New Providence..
4. *Geothlypis incompta incompta*. Abaco.
5. *Geothlypis incompta exigua*. Andros.
6. *Geothlypis coryi coryi*. Eleuthera.
7. *Geothlypus coryi flavida*. New Providence.

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<sup>1</sup> Bangs, Auk, XVII, 1900, 290.

<sup>2</sup> Birds N. and Mid. Am., II, 1902, 677, 678.

The latest authority to deal with the question is Mr. J. Lewis Bonhote,<sup>1</sup> who, apparently without having seen Mr. Ridgway's conclusions, challenges the status of *G. maynardi*, adducing arguments as well as *a priori* considerations tending to show that it represents merely the fully adult plumage of *G. rostrata*. Mr. Bonhote further records a dull-colored bird from Abaco which he refers doubtfully to *G. tanneri*, but he points out that if "*G. maynardi* and *G. rostrata* prove to be two good species, then the dull Abaco bird must be specifically distinct from *G. tanneri*, but could hardly be considered distinct from *G. rostrata*."

With this historical review of the subject as an introduction, let us now take up our series of specimens. Laying aside for the moment the (twenty-two) female and young birds and confining our attention to the adult males, we find the island of New Providence represented by forty-six specimens, with three exceptions all taken during the first six months of the year, and therefore in winter or nuptial plumage, as the case may be. Unlike *G. trichas*, there would seem to be no prenuptial moult, the nuptial plumage being acquired apparently by wear alone; at any rate, I can find no traces of such a moult in the present series. The lot of skins as they lie fall naturally into two series, the criteria for their separation being the intensity of the yellow below and the color of the flanks and tibiae. One, with which the type of *G. rostrata* agrees, is paler yellow below, the abdomen decidedly duller and paler than the throat and breast, while the flanks are conspicuously "light buffy grayish brown" — a difficult color to name precisely, but sufficiently distinctive autoptically. The other lot, to which the type of *G. maynardi* belongs, is obviously deeper and brighter yellow below, almost as bright on the belly as anteriorly, while the flanks are greenish yellow. These differences stand out prominently when the two series are compared as such, and apparently are not influenced to any extent by wear. Turning the skins backs uppermost, corresponding differences are obvious between the respective series, although perhaps not so decided or constant as in the case of the under parts. In *G. rostrata* the back is duller olive green, the gray of the crown is purer, less greenish, and the

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<sup>1</sup> *Ibis*, 1903, 283-286.

"superciliaries"<sup>1</sup> are grayish white, sometimes very faintly tinged with pale yellowish behind the eyes. In *G. maynardi* the back is brighter olive green, the crown averages more greenish, and the superciliaries are more decidedly tinged with yellow. There is, however, considerable individual and seasonal variation in all these respects. Several specimens taken in May and June are in more or less worn breeding dress, and in these the gray of the crown (which is mainly superficial) is scarcely obvious, the color being dull greenish. The type of *G. flavida* I have not seen, but the only other specimen referred to this form by Mr. Ridgway (No. 3376, Bangs Collection), now before me, I should judge to be merely a worn example of *G. maynardi*. At any rate, it certainly agrees very closely, allowing for its more worn and faded condition, with a skin of *G. maynardi* (No. 189826, U. S. National Museum) dated June 18. Additional corroborative evidence on this question is afforded by a study of the effect of wear in the case of *G. beldingi*,<sup>2</sup> a species closely allied to the Bahaman bird, although widely separated therefrom geographically. In this species there is a decided difference between birds in winter and in worn breeding plumage. Many individuals in the latter dress have no vestige of brown (corresponding to the gray of the Bahaman species) on the crown and occiput, while the post-facial band is wider, and brighter yellow, passing into yellowish green posteriorly, giving a much brighter general effect. The changes due to wear in this species, therefore, are evidently precisely analogous to those in the Bahaman bird which have led to the separation of the so-called *G. flavida*. Under such circumstances I think that there can be no doubt as to the propriety of dropping the latter from further consideration.

Measurements of the two supposed New Providence forms, as per the subjoined tables, and indicated by Mr. Bangs, show a small average difference in the wings, and tail, *G. maynardi* being slightly the larger in these respects. In the case of the females the color-

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<sup>1</sup> *I. e.*, the line along the upper margin of the black "mask," from above the eye to the nape.

<sup>2</sup> I am indebted to Mr. William Brewster and Mr. John E. Thayer for the loan of their respective series of this species, which, taken in connection with the material in the Carnegie Museum, has furnished an ample basis for study.

differences exhibited are much more striking than in the males, although of a parallel kind. The female of *G. rostrata* is dull yellow — nearly straw yellow — below, fading to dull white on the abdomen, the sides and flanks shaded with pale grayish or buffy olive — all with an obsoletely streaked appearance, the general effect being much as in some immature specimens of *Dendroica striata*, except for the dull yellow under tail-coverts. The female of *G. maynardi*, on the other hand, is much brighter yellow below, the belly paler, more buffy, the sides and flanks darker, the general resemblance to the same sex of *G. beldingi* being quite close. It was a bird of this type that was described by Mr. Cory as the female of *G. rostrata*, his original specimen being now before me.

Bearing in mind the nature of the variations exhibited by the series from New Providence, let us now take up the birds from the northernmost islands, Abaco, Little Abaco, and Great Bahama, which, together with their outlying cays, are represented by a series of thirty-eight specimens, of which seven are adult females, one a female in juvenal dress, and one a young male in postjuvenal moult. The Abaco bird was first described by Mr. Ridgway, as aforesaid, under the name *Geothlypis tanneri*, and with the type specimens all the skins but twelve agree — three from Great Bahama, two from Little Abaco, and seven from Abaco. These twelve skins are obviously referable to Mr. Ridgway's *G. incompta*, the type of which was one of the four specimens listed under the original description of *G. tanneri*. Taking up the specimens representing this latter species first, we find that they differ from *G. maynardi* in the following particulars: (1) the general olive color of the upper parts has a brownish cast, quite evident when the two series lie side by side; (2) the gray of the crown is less obvious, and sometimes replaced by greenish olive or brownish (the same shade as in *G. beldingi*), while the paler anterior margin is scarcely or not indicated; (3) the superciliaries are decidedly yellow, passing into white posteriorly; (4) the yellow below averages deeper, while the flanks are washed with brownish yellow. The size, however, is the same as in *G. maynardi*. I am unable to point out any constant differences between the females of *G. maynardi* and *G. tanneri*; the latter, however, seem to average a little more richly colored below.

*Geothlypis incompta*, however, may be readily distinguished from *G. tanneri*, differing (1) in its slightly smaller size; (2) in its duller coloration above, the crown and back being less strongly contrasted; (3) in its much paler superciliaries, which are whitish or yellowish white; (4) in the yellow below being decidedly duller, especially on the abdomen; (5) in the color of the flanks, which are light buffy grayish brown, exactly as in *G. rostrata*.

We are now prepared to consider our series from Andros Island, consisting of nine specimens, all but one males. Although so few in number, two distinct types are represented, corresponding to those inhabiting both New Providence and the northern islands. Although the type specimen of *G. exigua* is unfortunately not available, the description indicates a dull-colored bird of the *rostrata-incompta* group, but with a shorter wing and smaller and more slender bill. In view of the range of variation exhibited in the measurements of the other forms, I am not inclined to attach any great significance to these differences, even though a larger series prove their constancy, as they are at most very slight and in my judgment unworthy of nomenclatural recognition. In fact, after a very careful comparison I find myself quite unable to distinguish three of the Andros birds (Nos. 39531–39533, Field Museum Collection) from *G. rostrata*, and should refer them to that form without hesitation. The other five male examples, which are all of the bright-colored type, are not so easily allocated, but on the whole seem best referred to *G. maynardi*, although the superciliaries have rather more yellow than the average of that form. The single female bird is also best placed here.

One other form, *Geothlypis coryi*, from Eleuthera Island, remains to be considered. Besides the type, nine specimens are available, including two females. This form seems sufficiently distinct at first glance to stand as a full species. It is characterized by its bright coloration, the olive green of the upper parts being much brighter than in any of the other forms, and the crown shows scarcely a trace of gray, being almost as green as the back — even more so in worn plumage — while the superciliaries are almost wholly bright yellow, with only a trace of white along the upper margin of the black auricular patch. The post-frontal band also is yellowish, but is not very distinctly indicated. Below, the yellow is as rich as in *G. maynardi*, and the flanks similarly colored. In



all these characters the present form is approached by some specimens of the *maynardi-tanneri* type, to which it is obviously allied. The female, too, is more richly colored than in the other forms, being much brighter olive (as bright as the male) above, and brighter and more extensively yellow below, while the supercilaries are distinctly yellow. The alleged differences in proportions, and in the width of the black frontal band, seem inconsequential upon comparison.

It appears, therefore, that on every island except Eleuthera where the large Yellow-throats occur two styles of bird are found, one of duller, the other of brighter, colors. What relation do these two types bear to each other, and to their respective inter-island variants? Are the five forms which are susceptible of definition full species, geographical variations of one or more specific types, or different plumages of such subspecies? Obviously the two forms from any one island cannot be regarded as conspecific without violating the definition of a subspecies as a "geographic race," inasmuch as both occur together in an unusually restricted area. We have seen that *G. rostrata* and *G. incompta* on the one hand, and *G. maynardi*, *G. tanneri*, and *G. coryi* on the other, represent respectively the dull and the bright birds on the various islands. We might therefore be justified in arranging the forms as follows:

1. *Geothlypis rostrata rostrata*. New Providence, Andros.
2. *Geothlypis rostrata incompta*. Abaco, Great Bahama, etc.
3. *Geothlypis tanneri maynardi*. New Providence, Andros.
4. *Geothlypis tanneri tanneri*. Abaco, Great Bahama, etc.
5. *Geothlypis tanneri coryi*. Eleuthera.

So far as the actual characters of the forms go such an arrangement is natural enough, but there still remains the question why two so closely related specific types should thus occur together, occupying the same habitat, and still preserve their distinctive characters. Would not such an association of the two forms constantly tend to interbreeding between them to a greater or less extent, resulting ultimately in but one form? Mr. Bonhote, in the paper before referred to, presents the question thus: "Supposing that they reached the island [of New Providence] as two separate forms, they would be bound to approximate and merge together; or supposing, which is almost certainly the case, that

they arrived on the island as *one* species, in what manner could natural selection so act as to produce two distinct species on one small rocky island, without hills, rivers, or any pronounced geographical features?"

The point here raised has been quite fully discussed by Prof. Dean C. Worcester in his paper on the distribution of Philippine birds.<sup>1</sup> Prof. Worcester doubts (from negative evidence) if two closely allied species would fuse under such circumstances, but thinks that either they would both continue to exist, or one would exterminate the other. Instances of such coincident distribution are not so numerous, however, as to allay the suspicion that we may not be dealing here with a case of this kind. Mr. Bonhote has advanced the theory that the observed differences are due entirely to *age*, the duller-colored individuals being birds in first nuptial plumage, while the brighter ones, are in second or later nuptial plumage, basing his arguments mainly on a specimen in his collection apparently showing the transition. Through Mr. Bonhote's courtesy this specimen, No. 728 of his collection, is now before me. It is an individual just completing (September 9) the postnuptial moult, retaining only the feathers of the flanks and tibiae, which in color differ little from those of *G. rostrata*. Otherwise this specimen is typical of *G. maynardi*, being unusually richly colored below, owing of course to its fresh condition.

I should not be disposed to accept Mr. Bonhote's conclusions on the evidence of a single specimen of somewhat dubious character, especially in view of the fact that his theory finds no support by analogy when certain other species of this genus are examined, but there are other considerations not to be overlooked. The series of these birds which I have studied shows that in the dull-colored examples the plumage, particularly the remiges and rectrices, is more worn and faded than in bright-colored individuals taken at the same season. This is especially marked in the specimens from Abaco and Great Bahama, and fully accounts for the average difference in wing and tail measurements between the two series. Such a condition is precisely what obtains in the case of many species whose first nuptial plumage is merely the first winter plumage plus wear, to which the feathers of this stage are

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<sup>1</sup> Proc. U. S. Nat. Mus., XX, 1898, 600-617.

less resistant. While it is quite true that adults and young of *Geothlypis trichas* are indistinguishable in nuptial plumage by color characters, it is unsafe to assume that the same condition holds in the Bahama species, inasmuch as it is now known that allied species may moult quite differently. As previously noted, there seems to be no prenuptial moult in the Bahaman species, while a specimen (No. 14988, Bangs Collection, Little Abaco, July 11, 1904) in postjuvenal moult is assuming the black "mask," also the dull-colored plumage of the posterior under parts supposed to be characteristic (in this case) of *G. incompta*. Moreover, an "adult" specimen of *G. rostrata* (No. 30638, Collection Carnegie Museum, Blue Hills, New Providence, January 6, 1909), seems to have an elastic soft spot in the skull, indicating immaturity. Unless specimens showing a moult from the juvenal plumage directly into a bird of the bright-colored style are forthcoming, therefore, we are fully justified, I think, in accepting the explanation advanced by Mr. Bonhote, which covers all the facts in the case except the matter of the alleged difference in song. Regarding this point further field observations are desirable, but it is very likely, as Mr. Bonhote suggests, that age might be responsible for this also. However, it is significant that Mr. Riley states that a "specimen of *tanneri* [the Abaco representative of *maynardi*] taken was singing a song somewhat resembling the well-known notes of *G. trichas*, but probably with more force."

As might be expected, the immature birds are less numerous than the adults, and the small series of Eleuthera skins which I have examined does not happen to contain any.

Although the three forms which appear worthy of recognition are not known actually to intergrade, it seems best to regard them as insular forms of one specific type, *Geothlypis rostrata* Bryant. The distinctive characters of the adult males are as follows:

Crown decidedly grayish; superciliaries faintly yellow-tinged; back dull olive green; flanks greenish yellow. (New Providence, Andros.)

*Geothlypis rostrata rostrata*.

Crown more greenish (only superficially grayish); superciliaries decidedly yellow in front; back brownish olive green; flanks brownish olive yellow. (Abaco, Great Bahama, etc.) *Geothlypis rostrata tanneri*.

Crown decidedly yellowish green; superciliaries bright yellow; back bright olive green; flanks greenish yellow. (Eleuthera.)

*Geothlypis rostrata coryi*.

The problem, thus reduced to its lowest terms, is seen to be quite simple. The confusion heretofore obtaining has been largely due, it will have been observed, to an imperfect understanding of the sequence of plumages involved, occasioned by lack of material. While there is still much to be desired in this respect, I venture to predict that the conclusions announced will not be unfavorably affected by future observations. In this connection I would suggest that *Geothlypis rostrata* is perhaps the descendant of a form which came originally from southern Mexico by way of Yucatan, being most nearly related to the group of Mexican species which comprises *G. flavovelata*,<sup>1</sup> *G. chapalensis*, and *G. beldingi*, rather than to *G. trichas*.

In order to completely clear up the confusion in the present group it seems desirable to cite the references, which are accordingly given herewith, together with a list of the specimens examined. In order to indicate the average difference in measurements that exist the dull (immature) and bright (adult) birds are separately grouped. The respective collections to which the specimens belong are designated by small index figures, as follows: <sup>1</sup>U. S. National Museum; <sup>2</sup>Bangs Collection (now in the Museum of Comparative Zoölogy); <sup>3</sup>Carnegie Museum; <sup>4</sup>Field Museum; <sup>5</sup>American Museum; <sup>6</sup>Brewster Collection; <sup>7</sup>Columbia University; <sup>8</sup>Bonhote Collection. This material comprises very nearly all the specimens now in America.

### ***Geothlypis rostrata rostrata* Bryant.**

*Geothlypis rostratus* BRYANT, Proc. Boston Soc. Nat. Hist., XI, 1867, 67 (Nassau, New Providence; type now in collection U. S. National Museum; food).—CORY, Birds Bahama Is., 1880, 73, 226 (New Providence; descr.; crit.; habits).—CORY, List Birds W. Indies, 1885, 9 (New Providence).—RIDGWAY, Auk, III, 1886, 335, in text (crit.).—CORY, Cat. W. Indian Birds, 1892, 156 (New Providence and Andros; crit.).—BONHOTE, Ibis, 1899, 510 (New Providence; habits; crit.).

*Trichas rostrata* GRAY, Hand-List, I, 1869, 242.

*Geothlypis trichas* var. *rostrata* RIDGWAY, Am. Journ. Sci., IV, 1872, 458 (New Providence; diag.).—RIDGWAY, in Baird, Brewer and Ridgway, Hist. N. Am. Birds, I, 1874, 296 (New Providence; diag.).

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<sup>1</sup> *G. flaviceps* is now admitted by its describer, Mr. E. W. Nelson, to have been based on individual variation in *G. flavovelata*.

*Geothlypis rostrata* SHARPE, Cat. Birds Brit. Mus., X, 1885, 355 (reprint Cory's descr.).—CORY, Auk, III, 1886, 43 (reprint previous descr.).—RIDGWAY, Man. N. Am. Birds, 1887, 524 (diagnosis).—CORY, Birds W. Indies, 1889, 57 (reprint previous descr.).—CHAPMAN, Am. Nat., XXV, 1891, 533, 535 (relationship).—NORTHROP, Auk, VIII, 1891, 68 (Andros).—RIDGWAY, Auk, VIII, 1891, 335 (New Providence).—CORY, Cat. W. Indian Birds, 1892, 18, 119, 127 (New Providence and Andros).—PALMER, Auk, XVII, 1900, 217 (characters).—BANGS, Auk, XVII, 1900, 290, 291 (crit.; descr.; meas.; habits).—RIDGWAY, Birds N. and Mid. Am., II, 1902, 656 (crit.), 674 (descr.; syn.).—BONHOTE, Avic. Mag., VIII, 1902, 287 (New Providence; habits).—MAYNARD, Cat. Birds W. Indies, 1903, 26 (New Providence).—BONHOTE, Ibis, 1903, 283, (New Providence; crit.).—RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (New Providence; probable origin).—SHARPE, Hand-List, V, 1909, 115.

*Geothlypis coryi* (not of Ridgway) BANGS, Auk, XVII, 1900, 290, in text, 291 (Nassau, New Providence; crit.).—DUBOIS, Syst. Av., I, 1902, 437.—(?) RILEY, in Shattuck, The Bahama Islands, 1905, 367, part (Andros).

*Geothlypis maynardi* BANGS, Auk, XVII, 1900, 290 (Nassau, New Providence; type now in collection Museum Comp. Zoölogy; meas.; habits; crit.).—RIDGWAY, Birds N. and Mid. Am., II, 1902, 656 (crit.), 676 (descr.; syn.).—MAYNARD, Cat. Birds W. Indies, Second Appendix, 1903, 39 (New Providence).—BONHOTE, Ibis, 1903, 283, 284, 286, in text (New Providence; habits; crit.).—RILEY, Auk, XXII, 1905, 358 (New Providence; crit.).—RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (New Providence; probable origin).—SHARPE, Hand-List, V, 1909, 115.

*Geothlypis tanneri maynardi* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*Geothlypis exigua* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.), 677 (Fresh Creek, Andros; type now in collection British Museum).—MAYNARD, Cat. Birds W. Indies, Second Appendix, 1903, 39 (Andros).—RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (Andros; probable origin).—SHARPE, Hand-List, V, 1909, 115.

*Geothlypis incompta exigua* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*Geothlypis flavida* RIDGWAY, Birds N. and Mid. Am., II, 1902, 656 (crit.), 678 (Nassau, New Providence; type now in collection British Museum).—MAYNARD, Cat. Birds W. Indies, Second Appendix, 1903, 39 (New Providence).—RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (New Providence; probable origin).—SHARPE, Hand-List, V, 1909, 115.

*Geothlypis coryi flavida* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*List of Specimens.*

No.	Sex.	Locality.	Date.	Wing.	Tail.	Exp. Cul.	Tar.
54923 <sup>1</sup>	♂ im.	Nassau, N. P. (Type)		63	58	16	23.5
109939 <sup>1</sup>	♂ im.	Nassau, N. P.	May 30, 1884	62	56	16.5	23
3377 <sup>2</sup>	♂ im.	" "	" 14, 1897	61	56	16	22
3378 <sup>2</sup>	♂ im.	" "	Mar. 3, "	63	60	16	22
3379 <sup>2</sup>	♂ im.	" "	" 9, "	62.5	59	17.5	21.5
3380 <sup>2</sup>	♂ im.	" "	June 27, "	61	57	15	22.5
3381 <sup>2</sup>	♂ im.	" "	Mar. 6, "	65	60	16.5	22
3382 <sup>2</sup>	♂ im.	" "	May 13, "	61	58	16	21.5
3383 <sup>2</sup>	♂ im.	" "	Mar. 10, "	62.5	59	16.5	22
3384 <sup>2</sup>	♂ im.	" "	Feb. 6, "	62.5	57.5	15.5	22
3385 <sup>2</sup>	♂ im.	" "	" 25, "	63.5	58	16.5	21
3386 <sup>2</sup>	♂ im.	" "	Mar. 25, "	62.5	57	16.5	22
30638 <sup>3</sup>	♂ im.	Blue Hills, N. P.	Jan. 6, 1909	61	56.5	17	23
39531 <sup>4</sup>	♂ im.	Andros	Nov. 25, 1887	60	55	15.5	22
39532 <sup>4</sup>	♂ im.	"	Dec. 5, "	58	54	15	21
39533 <sup>4</sup>	♂ im.	"	" —, "	59	54	16	22.5
39534 <sup>4</sup>	♂ im.	Nassau, N. P.	Jan. 27, 1884	62.5	59	16	22
39535 <sup>4</sup>	♂ im.	" "	Feb. 2, "	64	58	17	22
39536 <sup>4</sup>	♂ im.	" "	Jan. 29, "	63	59	16.5	23
1388 <sup>8</sup>	♂ im.	" "	Apr. 19, 1902	63	59	16	23
108211 <sup>1</sup>	♀ im.	New Providence	Mar. 19, 1886	59	59	15	22
3375 <sup>2</sup>	♀ im.	Nassau, N. P.	Feb. 13, 1897	58.5	58.5	15.5	22
39537 <sup>4</sup>	♀ im.	" "	" 20, 1884	58	58	15.5	21
189826 <sup>1</sup>	♂ ad.	New Providence	June 18, 1903	67.5	61	16	22
3362 <sup>2</sup>	♂ ad.	Nassau, N. P.	May 11, 1897	66	56	16	22
3363 <sup>2</sup>	♂ ad.	" "	" " "	66	62	16	22
		(Type of <i>G. maynardi</i> )					
3364 <sup>2</sup>	♂ ad.	Nassau, N. P.	Feb. 8, "	65	61	16.5	22.5
3365 <sup>2</sup>	♂ ad.	" "	" 12, "	66	60	16.5	22
3366 <sup>2</sup>	♂ ad.	" "	Apr. 3, "	66	60	16	23
3367 <sup>2</sup>	♂ ad.	" "	May 14, "	67	61	16	22
3368 <sup>2</sup>	♂ ad.	" "	June 16, "	64	59	16.5	23
3369 <sup>2</sup>	♂ ad.	" "	May 24, "	63	60	16	21.5
3370 <sup>2</sup>	♂ ad.	" "	Mar. 4, "	62	58	17	23
3371 <sup>2</sup>	♂ ad.	" "	June 24, "	67	55	16	22.5
3372 <sup>2</sup>	♂ ad.	" "	May 11, "	64	59	16	21
3373 <sup>2</sup>	♂ ad.	" "	" " "	65	60	16	21
3374 <sup>2</sup>	♂ ad.	" "	June 22, "	59	58	16.5	22

*List of Specimens. (Continued.)*

No.	Sex.	Locality.	Date.	Wing.	Tail.	Exp. Cul.	Tar.
3376 <sup>2</sup>	♂ ad.	Nassau, N. P.	July 7, 1897	65.5	59	15.5	23
30599 <sup>3</sup>	♂ ad.	Blue Hills, N. P.	Jan. 1, 1909	64	57	17	22
30735 <sup>3</sup>	♂ ad.	" " "	" 19, "	65	61	16	22
31024 <sup>3</sup>	♂ ad.	Staniard Creek, Andros	Apr. 17, "	62	55	15	23
39555 <sup>4</sup>	♂ ad.	"Bahama Islands"	Feb. —, 1884	68	59	15.5	23
39556 <sup>4</sup>	♂ ad.	Nassau, N. P.	" 28, "	67	59	16	23
39557 <sup>4</sup>	♂ ad.	" "	Jan. 28, "	66.5	56	17	22.5
39558 <sup>4</sup>	♂ ad.	" "	Apr. 8, "	68.5	60	15.5	22.5
39560 <sup>4</sup>	♂ ad.	" "	Mar. 11, "	69	62	16	24
39562 <sup>4</sup>	♂ ad.	" "	May 27, "	66	60	17	22
39564 <sup>4</sup>	♂ ad.	" "	— — "	64	56	15	22.5
39566 <sup>4</sup>	♂ ad.	" "	May 15, 1887	66		16	22.5
39567 <sup>4</sup>	♂ ad.	" "	Dec. 28, 1878	67	57	17.5	23
39569 <sup>4</sup>	♂ ad.	Andros	Apr. 24, 1884	65	59	15	22
39570 <sup>4</sup>	♂ ad.	" "	" " "	65	61	15.5	23
39572 <sup>4</sup>	♂ ad.	" "	Nov. 25, 1887	60	56	15	22
39887 <sup>5</sup>	♂ ad.	Nassau, N. P.	May 10, 1884	66	62	17	22.5
13140 <sup>6</sup>	♂ ad.	" "	Feb. 21, "	67	59	16	22
258 <sup>7</sup>	♂ ad.	Nicol's Town, Andros	Mar. 21, 1890	62	60	15	23
1283 <sup>8</sup>	♂ ad.	Nassau, N. P.	Mar. 3, 1902	65	61	16	23
728 <sup>8</sup>	♂ ad.	" "	Sept. 10, 1898	61	58	15	22
109938 <sup>1</sup>	♀ ad.	" "	Feb. 27, 1884	62	56		22
39559 <sup>4</sup>	♀ ad.	" "	" 4, "	67	58	14.5	21
39561 <sup>4</sup>	♀ ad.	" "	Jan. 30, 1884	60	57	15.5	22
39563 <sup>4</sup>	♀ ad.	" "	Feb. 12, "	64	56	15	23
39565 <sup>4</sup>	♀ ad.	" "	Jan. —, "	61	55	16	23
39568 <sup>4</sup>	♀ ad.	" "	" 25, 1879	63	59	15.5	22
39571 <sup>4</sup>	♀ ad.	Andros	Dec. 4, 1887	62	55	15.5	22
13141 <sup>6</sup>	♀ ad.	Nassau, N. P.	Feb. 27, 1884	63	59	16	22

***Geothlypis rostrata tanneri* Ridgway.**

*Geothlypis tanneri* RIDGWAY, Auk, III, 1886, 335 (Abaco; type, whose number should be corrected to 108493, in collection U.S. National Museum).—RIDGWAY, Man. N. Am. Birds, 1887, 525 (diagnosis).—JENNINGS, Johns Hopkins University Circulars, VII, No. 63, 1888, 39 (Joe's Cay, Little Abaco).—CORY, Auk, V, 1888, 157.—CORY, Birds W. Indies, 1889, 287 (Abaco; reprint orig. descr.).—CORY, Birds Bahama Is., ed. 2, 1890, inserted page (Abaco; reprint orig. descr.).—CORY, Auk, VIII, 1891, 298 (Abaco).—RIDGWAY, Auk, VIII, 1891, 334 (Abaco).—CORY, Cat.

W. Indian Birds, 1892, 156, in text (Abaco and Great Bahama; crit.).—PALMER, Auk, XVII, 1900, 217 (characters).—BANGS, Auk, XVII, 1900, 290, in text.—RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.), 676 (Abaco, Great Bahama ?; descr.; syn.).—BONHOTE, Ibis, 1903, 285 (Little Abaco; crit.).—MAYNARD, Cat. Birds W. Indies, 1903, 27 (Abaco).—ALLEN, (G. M.), Auk, XXII, 1905, 131 (Great Bahama, Moraine Cay, Abaco, Elbow Cay; habits).—RILEY, Auk, XXII, 1905, 358, 359, in text (Abaco; habits).—RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (Abaco, Little Abaco ?, Great Bahama ?; probable origin).—SHARPE, Hand-List, V, 1909, 115.

*Geothlypis tannerii* CHAPMAN, Am. Nat., XXV, 1891, 533, 535 (relationship).

*Geothlypis rostratus tanneri* CORY, Auk, VIII, 1891, 350 (Great Bahama).

*Geothlypis rostrata tanneri* CORY, Cat. W. Indian Birds, 1892, 18, 119, 127 (Abaco, Great Bahama).

*Geothlypis rostrata* var. *tanneri* DUBOIS, Syst. Av., I, 1902, 437.

*Geothlypis tanneri tanneri* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*Geothlypis tanner* (lapsus) ALLEN (G. M.), Auk, XXII, 1905, 133 (cays off Abaco, etc.).

*Geothlypis incompta* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.), 677 (Abaco; type in U. S. National Museum).—MAYNARD, Cat. Birds W. Indies, Second Appendix, 1903, 39 (Abaco).—ALLEN (G. M.), Auk, XXII, 1905, 131 (crit.).—RILEY, Auk, XXII, 1905, 359 (Abaco; habits).—RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (Abaco; probable origin).—SHARPE, Hand-List, V, 1909, 15.

*Geothlypis incompta incompta* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

### *List of Specimens.*

No.	Sex.	Locality.	Date.	Wing.	Tail.	Exp. Cul.	Tar.
108493 <sup>1</sup>	♂ ad.	Abaco (Type)	Apr. 3, 1886	67	61	15.5	22.5
189827 <sup>1</sup>	♂ ad.	"	July 22, 1903	62	58	16	21.5
14985 <sup>2</sup>	♂ ad.	Moraine Cay	" 13, 1904	66	63	15.5	21
14986 <sup>2</sup>	♂ ad.	Great Bahama	" 17, "	65	59	15	22
31030 <sup>3</sup>	♂ ad.	Sand Bank, Abaco	Apr. 24, 1909	61	59	16	22
31086 <sup>3</sup>	♂ ad.	" " "	" 29, "	65	62	16	21
31107 <sup>3</sup>	♂ ad.	Spencer's Pt., Aba.	May 4, "	61	59	16	22
31108 <sup>3</sup>	♂ ad.	" " "	" " "	63	61	16.5	22
31121 <sup>3</sup>	♂ ad.	" " "	" 5, "	64	59	16	22
31138 <sup>3</sup>	♂ ad.	" " "	" 6, "	64	60	16	21
39543 <sup>4</sup>	♂ ad.	Great Bahama	June 23, 1891	60	60	16	22



*List of Specimens. (Continued.)*

No.	Sex	Locality.	Date.	Wing.	Tail.	Exp. Cul.	Tar.
39544 <sup>4</sup>	♂ ad.	Great Bahama	June 24, 1891	58 ?	54	16	22
39545 <sup>4</sup>	♂ ad.	" "	" 23, "	63	59	15	22
39546 <sup>4</sup>	♂ ad.	" "	" 24, "	63	59	16.5	22
39548 <sup>4</sup>	♂ ad.	" "	" 29, "	62	57	16	22
39550 <sup>4</sup>	♂ ad.	" "	Dec. 22, "	61	56	15.5	23
39553 <sup>4</sup>	♂ ad.	" "	" 23, "	63	58.5	15	22.5
39554 <sup>4</sup>	♂ ad.	Abaco	Mar. " "	62	60	16	21.5
1349 <sup>8</sup>	♂ ad.	Little Abaco	" 28, 1902	64	58	15.5	22
108496 <sup>1</sup>	♀ ad.	Abaco	Apr. 3, 1886	59	56	15	22
14987 <sup>2</sup>	♀ ad.	Great Bahama	July 17, 1904	59	54	16	22
39547 <sup>4</sup>	♀ ad.	" "	June 23, 1891	55	51	15	21
39549 <sup>4</sup>	♀ ad.	" "	" 29, "	54	55	15	23
39551 <sup>4</sup>	♀ ad.	" "	Jan. 18, 1892	56	53	15	22
39552 <sup>4</sup>	♀ ad.	" "	Dec. 23, 1891	57	56	15	21
1359 <sup>8</sup>	♀ ad.	Little Abaco	Mar. 30, 1902	60	57	15	—
14988 <sup>2</sup>	♂ juv.	" "	July 11, 1904	62	57	15	22
108494 <sup>1</sup>	♂ im.	Abaco	Mar. 27, 1886	62	58	16	22
108495 <sup>1</sup>	♂ im.	" (Type of <i>G. incompta</i> )	Apr. 6, "	61	54	15.5	22
189758 <sup>1</sup>	♂ im.	"	July 22, 1903	60	56		22
31059 <sup>3</sup>	♂ im.	Sand Bank, Abaco	Apr. 27, 1909	61	60	16.5	22
31120 <sup>3</sup>	♂ im.	" " "	May 5, "	62	61	16	21
39538 <sup>4</sup>	♂ im.	Abaco	June 15, 1891	59	55	16	23
39539 <sup>4</sup>	♂ im.	" "	" 13, "	62	55	14	22
39540 <sup>4</sup>	♀ juv.	Great Bahama	" 24, "	56	55	14	22
39541 <sup>4</sup>	♂ im.	" "	" 29, "	52	54		22
39542 <sup>4</sup>	♂ im.	" "	Jan. 8, 1892	61	59	15	21.5
1313 <sup>8</sup>	♂ im.	Little Abaco	Mar. 22, 1902	61	59	15.5	22

***Geothlypis rostrata coryi* Ridgway.**

*Geothlypis coryi* RIDGWAY, Auk, III, 1886, 334 (Eleuthera: type in collection U. S. National Museum; crit.).—RIDGWAY, Man. N. Am. Birds, 1887, 525 (diagnosis).—CORY, Auk, V, 1888, 157.—CORY, Birds W. Indies, 1889, 287 (reprint orig. descr.).—CORY, Birds Bahama Is., ed. 2, 1890, inserted page (reprint orig. descr.).—CHAPMAN, Am. Nat., XXV, 1891, 533, 535 (relationship).—RIDGWAY, Auk, VIII, 1891, 336 (Eleuthera).—CORY, Auk, VIII, 1891, 351 (Eleuthera).—CORY, Cat. W. Indian Birds, 1892, 18, 119, 126, 127, 156 (Eleuthera; crit.).—PALMER, Auk, XVII,

1900, 217 (characters).—BANGS, Auk, XVII, 1900, 290, in text (song).—RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.), 677 (descr.; syn.).—MAYNARD, Cat. Birds W. Indies, 1903, 26 (Eleuthera).—RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367, part (Eleuthera; probable origin).—SHARPE, Hand-List, V, 1909, 115.

*Geothlypis coryi coryi* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*Geothlypis rostrata* var. *coryi* DUBOIS, Syst. Av., I, 1902, 437.

*List of Specimens.*

No.	Sex.	Locality.	Date.	Wing.	Tail.	Exp. Cul.	Tar.
107876 <sup>1</sup>	♂ ad.	Eleuthera (Type)	Mar. 12, 1886	65	59	16	22.5
107877 <sup>1</sup>	♂ ad.	"	" " "	60	59	16.5	22.5
39524 <sup>4</sup>	♂ ad.	" (S. dist.)	Nov. 16, 1891	64	57		22.5
39525 <sup>4</sup>	♂ ad.	" (N. dist.)	" 17, "	64	60	16	22
39526 <sup>4</sup>	♂ ad.	" (N. E. Pt.)	" 23, "	65	58	16	22
39528 <sup>4</sup>	♂ ad.	" (moulting)	July 15, "	63	56	15	21.5
39529 <sup>4</sup>	♂ ad.	"	" " "		61	16	22
39530 <sup>4</sup>	♂ ad.	"	" 16, "	63	58	15	
107875 <sup>1</sup>	♀ ad.	"	Mar. 13, 1886	61.5	57	15.5	22.5
39527 <sup>4</sup>	♀ ad.	" (moulting)	July 15, 1891	55	57	15.5	22

In conclusion the writer wishes to acknowledge his indebtedness to the authorities of the various institutions specified previously, also to Messrs. William Brewster, John E. Thayer, and J. Lewis Bonhote, for the loan of specimens without which the present study would have been quite impossible.